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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/043,440	01/10/2002	Costas D. Maranas	P05468US1	1336

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EXAMINER

MORAN, MARJORIE A

ART UNIT	PAPER NUMBER
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1631

DATE MAILED: 03/28/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/043,440

Applicant(s)

MARANAS ET AL.

Examiner

Marjorie A. Moran

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 13 December 2005.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-16, 19-27 and 29-32 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 23, 25-27 and 29 is/are allowed.
- 6) ☒ Claim(s) 1-16, 19-21, 24, 26, 27 and 30-32 is/are rejected.
- 7) ☒ Claim(s) 22 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date. _____ | 6) <input type="checkbox"/> Other: _____ |

RCE

The Request for Continued Examination filed 12/13/05 is improper as prosecution on the merits had not been closed prior to filing of the RCE. The previous office action, mailed 8/18/05, was NONFINAL. However, in the interests of facilitating prosecution, the amendment filed 12/13/05 is considered responsive to the nonfinal office action and has been entered. An action on the merits of pending claims 1-16, 19-27, and 29-32 follows.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 2, 21, 24 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Amended claims 2, 21, and 24 recite that logic constraints "protect against..." It is unclear whether this is intended to be a further method step (i.e. one of protecting) or intended to be a limitation of the constraints themselves (i.e. wherein the constraints are those which protect... or are those capable of protecting...) As the limitation intended in the claims is unclear, the claims are indefinite.

Claim 24 recites the limitation "the logic constraints" in line 1. There is insufficient antecedent basis for this limitation in the claim. Parent claim 23 recites only "constraints" and does not recite any "logic constraints".

Applicant's arguments with respect to claims 2, 21 and 24 have been considered but are moot in view of the new ground(s) of rejection set forth above. It is noted that applicants have amended the claims in order to clarify the limitations; unfortunately, the amendments introduced new issues of indefiniteness, as set forth above. The examiner has provided exemplary language in an effort to help applicant overcome the rejections; however, applicant is reminded that all amendments must be fully supported by the originally filed disclosure.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-8, 10-12, 14-15, 19-21, and 30-31 are rejected under 35 U.S.C. 102(b) as being anticipated by HATZIMANIKATIS et al. (AIChE Journal (May 1006) Vol. 42, no. 5, pp. 1277-1292).

Applicant's arguments filed 12/13/05 have been fully considered but they are not persuasive. In response to applicant's argument on page 9 of the response that a flux balance analysis model "utilizes only the stoichiometric mass balances of the metabolic network and cellular composition information..." it is noted that while the instant specification does exemplify such a model, the example is not a limiting definition of a

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flux balance analysis model. Applicant is reminded that limitations from the specification may not be “read into” the claims. In response to the argument that other (prior) art characterizes HATZIMANIKATIS as a “kinetic modeling method”, it is noted that the prior art of COVERT et al (IDS ref: J. Theor. Biol. (2001) vol. 213, pages 73-88), describes the same HATZIMANIKATIS reference in the context of flux balance analysis (p. 74) and teaches that both a constraints-based approach to *metabolic* network analysis and linear programming may be incorporated into a flux balance analysis model (p. 75). It is noted that HATZIMANIKATIS teaches that his model represents a constraint-based metabolic network which includes mass balances for each metabolite (p. 1282), and which represents fluxes of reactions (p. 1282, left column). Thus, while it is admitted that HATZIMANIKATIS' equations include metabolic kinetic information, the examiner maintains that the model itself, which represents fluxes of reactions and comprises mass balance information, is a flux balance analysis. In response to the argument that HATZIMANIKATIS uses mass balances to optimize a metabolic “problem”, it is noted that the prior art of VARMA et al. (Applied and Environmental Microbiology (1994) vol. 60, no. 10. pp. 3724-3731) provides support that models representing metabolic reaction networks may be considered flux balance models and can be used to optimize cell growth and/or production (abstract), thus the mere fact that HATZIMANIKATIS uses his model to optimize a metabolic outcome does not mean that it is not a flux balance model. For the reasons set forth above, applicant's arguments are not persuasive, and the rejection is maintained.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 13, 16, and 32 are rejected under 35 U.S.C. 103(a) as being unpatentable over HATZIMANIKATIS et al. (AIChE Journal (May 1006) Vol. 42, no. 5, pp. 1277-1292) as applied to claims 1-8, 10-12, 14-15, 19-21, and 30-31, above.

Applicant's arguments filed 12/13/05 have been fully considered but they are not persuasive. Applicant merely argues that as HATZIMANIKATIS does not teach a flux balance analysis model, the rejection should be withdrawn. The examiner maintains that HATZIMANIKATIS does teach a flux balance analysis model for the reasons set forth above, therefore the rejection of claims 13, 16 and 32 is also maintained.

Allowable Subject Matter

Claim 22 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims. Claims 23, 25-27 and 29 are allowed.

The following is a statement of reasons for the indication of allowable subject matter: None of the prior art teaches or fairly suggests applying DNA experimental data constraints in a flux balance analysis model.

Conclusion

Claims 1-16, 19-21, 24, 26-27, and 30-32 are rejected; claim 22 is objected to, and claims 23, 25-27 and 29 are allowed.

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of

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the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Marjorie A. Moran whose telephone number is (571) 272-0720. The examiner can normally be reached on Mon,Wed: 7-1:30; Tue,Thur: 7:30-6; Fri 7-3:30 EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ardin Marschel can be reached on (571)272-0718. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Marjorie A. Moran
Primary Examiner
Art Unit 1631

Marjorie A. Moran
3/16/08